

SIO 3: Life in the Oceans

Winter Quarter 2015

Course Instructor:

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Course Structure: Three lectures per week on Monday, Wednesday and Friday at 2:00- 2:50
Location: Warren Lecture Hall rm. 2205

Course Description: This course will introduce you to a wide variety of organisms that live in the oceans, the habitats they occupy, and how species interact with each other and their environment. Included will be examinations of adaptations, behavior, ecology, and a discussion of local and global resource management and conservation issues. Lectures and assigned readings will be supported by discussion sections to review course information and/or participate in activities outside the classroom.

iClicker will be use during the lecture. Deadline for registering is January 12th.

Textbook: *Marine Biology* (9th edition), P. Castro & M.E. Huber, McGraw-Hill.

Additional course readings will be assigned in class and will be available as pdf's on Ted

Grading:

Two midterm exams (multiple choice, matching and short answer format)	
iClicker	= 20 points (5%)
1st Midterm	= 100 points (25%)
2nd Midterm	= 100 points (25%)
Final exam (multiple choice, matching and short answer)	= 100 points (25%)
Discussion Sections	= 80 points (20%)
Total	= 400 points

Discussion Sections: are mandatory and are primarily for the clarification of lecture material and readings; however, some required readings that are not discussed in class may be reviewed in section. Sections have been scheduled as follows:

SIO 3 Lecture/Exam Schedule (Winter 2015)

Date	Lecture Topic	Text Reading
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>> Week 1

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|----------|---|-----------|
| 1) Jan 5 | Science of Marine Biology; History of Ocean Exploration | Chapter 1 |
| 2) Jan 7 | Introduction; Fundamentals of Biology | Chapter 4 |
| 3) Jan 9 | Microbes | Chapter 5 |

Discussion Topic: What is Science? and the role of traditional knowledge in Marine Biology?
Dis. Reading: "Western science and traditional knowledge" by Mazzocchi

>> Week 2

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|-----------|-------------------------|-----------|
| 4) Jan 12 | Seaweeds and Plants | Chapter 6 |
| 5) Jan 14 | Marine Invertebrates I | Chapter 7 |
| 6) Jan 16 | Marine Invertebrates II | Chapter 7 |

Discussion Topic: Phytoplankton

Dis. Reading: "A Massive Phytoplankton Bloom Induced by an Ecosystem-Scale Iron Fertilization Experiment in the Equatorial Pacific Ocean" by K.H. Coale *et al.*

>> Week 3

Jan 19 *MLK Jr. Day – NO CLASS*

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|-----------|-----------------|-----------|
| 7) Jan 21 | Marine Fishes I | Chapter 8 |
| 8) Jan 23 | Guest Lecture | |

Discussion Topic: Midterm Exam 1 review session

>> Week 4

Jan 26 Midterm: Lectures 1-8

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|------------|-------------------------|-----------|
| 9) Jan 28 | Marine Fishes II | Chapter 8 |
| 10) Jan 30 | Marine Birds & Reptiles | Chapter 9 |

Discussion Topic: From Fish to Fishery

Dis. Reading: "Bottom-Up Ecosystem Trophic Dynamics Determine Fish Production in the Northeast Pacific"

>> Week 5

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|-----------|--------------------------------|-------------------------|
| 11) Feb 2 | Marine Mammals I | Chapter 9 |
| 12) Feb 4 | Marine Mammals II | Chapter 9 |
| 13) Feb 6 | Introduction to Marine Ecology | Chapter 10 (p. 211-230) |

Discussion Topic: Ocean Primary Production

Dis. Reading: Biogeochemical Controls and Feedbacks on Ocean Primary Production by P.G. Falkowski *et al.*

>> Week 6

- 14) Feb 9 Introduction to Physical Oceanography Chapters 3
- 15) Feb 11 Intro to Intertidal Communities Chapter 11
- 16) Feb 13 Coral Reefs I Chapters 14

Discussion Topic: Coastal Systems & People

Dis. Reading: "The oceans as peopled seascapes" by Shackeroff et al.

>> Week 7

Feb 16 *President's Day – NO CLASS*

- 17) Feb 18 Coral Reefs II Chapter 14
- 18) Feb 20 Guest Lecture

Discussion Topic: Midterm Exam 2 review session

>> Week 8**Feb 23 Midterm: Lectures 9-18**

- 19) Feb 25 Estuaries, Kelp Forests Chapters 12
- 20) Feb 27 Epipelagic Chapter 15

Discussion Topic: Mangroves

Dis. Reading: "Forests of the Tide: Mangroves" by Warne (National Geographic)

>> Week 9

- 21) Mar 2 Deep Ocean Chapters 16
- 22) Mar 4 Resources from the Oceans Chapter 17
- 23) Mar 6 Impacts of Humans on the Marine Environment Chapter 18

Discussion Topic: Ocean Health Index (<http://www.oceanhealthindex.org/>)

Dis. Reading: "An index to assess the health and benefits of the global ocean" by Halpern *et al.*

>> Week 10

- 24) Mar 9 Climate Change and Ocean Acidification Chapter 10 (p. 231-243)
- 25) Mar 11 Movie Day
- 26) Mar 13 Interactive tour of the Birch Aquarium

Discussion Topic: Final Exam review session

>> Week 11

Mar 16 Final Exam (50% = lectures 19-25; 50% Cumulative)